

FLIGHT

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ENGINEER
&
AIRSHIPS

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Founder and Editor: STANLEY SPOONER

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Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

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Sept. 4-11	Brescia Races
Sept. 17	Royal Aero Club Race Meeting, Waddon Aerodrome, Croydon
Sept. 18	Gordon Bennett Balloon Race, Brussels
Oct. 1	Coupe Deutsch de la Meurthe
Oct. 22-30	Aero Exhibition, Prague
Nov. 3	Lecture, "Manceuvres of Getting Off and Landing," by Sq. Ldr. R. M. Hill, before R.Ae.S.
Nov. 12-27	Paris Aero Salon
Nov. 15-26	International Air Navigation Congress (Paris)
Nov. 17	Lecture, "Requirements and Difficulties of Air Transport," by Col. F. Searle, before R.Ae.S.
Dec. 1	Lecture, "Design of a Commercial Aeroplane," by Capt. G. de Havilland, before R.Ae.S.
Dec. 15	Lecture, "Development of the Fighting Aeroplane," by Capt. F. M. Green, before R.Ae.S.

EDITORIAL COMMENT



FROM whatever angle of view the loss of "R.38" is regarded, it is one of the worst tragedies which have ever befallen the British Air Service. In those who were killed in the disaster the R.A.F. has lost the very pick of the airship service—men who pioneered the airship in its early days, and who,

by constant thought, study and experiment, and by cheerfully accepting the direst personal risks, succeeded in placing their chosen branch of the Service first among all the nations. It is due to Air-Commodore Maitland and his fellows that we had airships at all during the War. Only when we recollect our position in 1914, when our whole airship service was represented by a couple of undersized, under-powered non-rigid ships, and contrast it with that obtaining at the end of the War, are we fully able to appreciate all that these men have done for the cause of the airship. There is just this amount of consolation to be drawn from the manner of their death—that they died as they would have wished, at the post of duty and in the act of assisting towards the goal they had set their hearts upon reaching.

Our sympathy, inadequate as we know it must be in the circumstances, goes out to the United States' Navy in the grievous loss that gallant service has sustained by the death of Comdr. Maxfield and his officers and men. Like our own service, the American Navy has lost the cream of its airship branch—men whom it will be difficult indeed to replace. But they will not have died in vain, for others will step forward to fill the gaps they have left, and, so far from the cause of progress receiving a setback, the glorious example set by those who are gone will impel others to work with enhanced keenness to the end that such things may be made impossible to happen again. It is ever thus, that no matter what the danger or at what expense the end is to be achieved, example counts for more than precept, and for one who dies a dozen are ready to fill the breach.

We
Must
Go On

The tragic loss of "R.38" could hardly have come at a more inopportune time than it did. As the whole world knows, the future of the British airships has

been in the melting-pot this year and more. Quite recently important decisions were taken regarding the use to which these ships can, or may, be put, and the whole question of using them to establish aerial communications within the Empire has been referred to the Dominion Governments. Until this disaster occurred, there seemed to be every probability that something would be done along the lines which have been so often discussed in these columns. It would be idle now to pretend that the loss of "R.38" in such tragically spectacular a manner can have any but a most unfavourable reaction on the decisions which will be reached by those Governments. Indeed, it will be as strange as it will be unexpected if the result is not a set-back which will endure for some years to come. That is a perfectly natural consequence with which, unfortunately, we have to reckon at the moment. It is a temporary condition, no doubt, but it is nevertheless a condition which has to be faced, whether we like it or not.

We have said that the airship is the victim of circumstances which will pass. They *must* pass. Human progress has never yet been retarded by accident or disaster, nor will the loss of "R.38" be singular in this. There has never been any doubt in our mind that the big airship is in the years to come to fill a most important place in communications, and it would require the loss of many more of the type to shake our belief in it. Nothing has ever been brought to perfection without loss and accident, nor need we go back beyond living memory for numberless examples of how the pioneer types have endured trouble and loss until the knowledge gained thereby has brought them to relative perfection. The first turret ship, the *Captain*, capsized in the Bay of Biscay, and caused the loss of nearly her whole crew. The type was not, as we know, abandoned, but the causes of the disaster were sought out, radical improvements made, and such progress has been made in design that the turret ship is the type of today. Again, the early vessels of the destroyer type had a disconcerting habit of breaking their backs in a heavy seaway. The destroyer was not condemned as an unsuitable and impossible craft to build. On the contrary, its peculiar attributes as a part of the Fleet were so well recognised that pains were taken to eliminate weaknesses, and some amount of speed was sacrificed to gain a larger factor of safety. We need not go as far back as this for examples. Still keeping to the Navy for our examples, when the "Hush-hush" ships—the *Courageous*, *Furious*, and *Glorious*—were built, early in the War, it was found on their trials that their enormous speed was too much for the strength of the bow frames, which were crushed in by the pressure they were subjected to when steaming fast. We are still building fast battle-cruisers, because the lesson was learnt and its results applied. We could multiply these examples almost indefinitely if there were need, as there most certainly is not—the moral being perfectly plain to read. We must go on and so improve the construction of the rigid airship that such disasters as befell the "R.38" will be impossible. It can be done, and it must.

A Public Statement Necessary Some little comment has been made regarding the announcement of the Air Ministry that the inevitable enquiry into the causes of the loss of "R.38" is to be held in private. We have nothing to say as to that, except that such enquiries are

invariably held behind closed doors, and, we think, rightly. Courts of Enquiry sit to get at the facts and to report upon them. They are in no sense courts of justice as we understand the term, and they are much more likely to get at the technical facts of a case if they are not hampered by the introduction of all sorts of extraneous matters and questions, as would inevitably be the case if they sat in public.

There is every reason, however, why the conclusions of the Court of Enquiry should be given to the public with as little delay as may be. There has been a great deal of talk about the loss of "R.38" being due to defective design and resulting structural weakness. There is strong reason to believe that the officers who conducted the trials were by no means satisfied with her behaviour. In fact, it is said that more than one expressed his belief that her end would be as it was. The ship marked a radical departure from previous types. Up to the design of the class we had adhered, with but slight modifications, to Zeppelin practice, but towards the end of the War the introduction by the Germans of the class represented by "L.71," which had a ceiling of 25,000 ft., called for the construction of ships of superior type. The new class to which "R.38" belonged was designed for a ceiling of 27,000 ft., and considerable departures were made in its design as compared with previous classes. The weight of the girder construction had to be kept down as much as possible, and other modifications were made in order to secure speed and quick lift. Whether these modifications were responsible for the structural weakness alleged, and which seems to have showed itself during previous trials, is a matter which ought to be made clear at once. The Air Ministry has nothing to fear from the publications of the findings of the Court of Enquiry. Everybody realises that to achieve progress there must be experiment. Hand in hand with experiment goes accident, and that this present accident is so grimly tragic does not affect the matter at all. But neither the one nor the other is of use unless their results are made fully known to those who have undertaken their part in development. On every ground, then, it is most desirable that we should know why and how the failure occurred, and we trust the Air Ministry will see it in that light.

The Big Ship Controversy The result of the bombing experiments recently carried out by the United States naval air service against the ex-German battleship *Ostfriesland* seems to have been somewhat negative so far as regards the conclusions to be drawn. The report of the commission of naval and military officers appointed to observe the experiments says that "the aeroplane, instead of furnishing an economical instrument of war leading to the abolition of the battleship, has merely added to the complexity of naval warfare." This does not carry us very far. In elaborating the conclusions, the report urges the difficulty of drawing up exact data as to the ability of aircraft to hit surface vessels, as the tests were not conducted under war conditions. It says that the number of direct hits under such conditions would be relatively few. Great damage was, however, done by the mining effects of large bombs exploding under water alongside a vessel. The effect of direct hits, even with the largest bombs, on hulls and heavy fittings, such as guns and turrets, was "negligible."

The Commission concludes that in coast defence

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LONDON-PARIS FROM THE AIR, AS SEEN FROM A HANDLEY PAGE MACHINE.

No. 7—The Victoria District: Some notable points in this photograph are the Serpentine, Hyde Park, Green Park, Grosvenor Place, Belgrave Square, Eaton Square. In the extreme right bottom corner is one end of Ebury Bridge.

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operations aeroplanes possess important tactical and strategical qualifications. In adequate numbers they may prove a decisive factor in such operations. The development of anti-aircraft armament and the equipment of fleets with numbers of pursuing aeroplanes borne in aircraft carriers are considered by the Commission to definitely limit the possibilities of attacking fleets at sea by heavy bombing machines.

In the absence of the full text of the Report—we are quoting from a telegraphic summary—it would be unfair to criticise the apparently tentative conclusions reached by the Commission. It might have been thought that the results of the experiments under discussion would have been such as to have enabled a board of experienced officers to arrive at something more definite than is set forth in the summary. If we are to take the obvious meaning of the conclusions, it is that to equip fleets with aircraft is a mere waste of money since in any case they would prove quite ineffective auxiliaries. Clearly, if the effect of direct hits from heavy bombs is negligible, it is useless for aircraft to try for them, especially as much greater effect is produced by exploding the bombs alongside. By suitable methods of "blister" construction of ships, however, this mining effect could be reduced to something as negligible as the direct hit, and we are driven back on the conclusion that, if the United States Commission is right, the armour has beaten the bomb. And, if aircraft are so ineffective in attack as the Commission seems to imply, why are they likely to exercise a decisive effect on coast defence operations? The two things do not appear to run together. However, we must defer further comment until the full text of the Report is available.

* * *

While some of the Overseas Dominions appear to be paying close attention to the development of aviation, civil and service, South Africa would seem, for some reason, to be suffering from a lack of enterprise, especially so far as the Union Government is concerned, although the latest news to hand from Sir P. Van Ryneveld, Director of the South African Air Force, who announces that any part of South Africa can now be reached by air from Pretoria in 24 hours, is more assuring.

South Africa's Slow Progress

The Aero Club of South Africa held its annual dinner in Cape Town recently, and a great deal of rather bitter criticism of the Government attitude towards aviation was voiced. If we are to take the criticisms seriously—and we can do no less at this distance—not only does the Government appear to give no encouragement to aviation, but every obstacle is placed in the way of development. One speaker quoted a number of instances where aviation had suffered from the attitude of the Government, and particularly of the Railways Department. He had, he said, been charged £52 for the carriage of a new wing. (He did not specify the distance it was carried.) Then, he was offered a contract to fly in Rhodesia for a few months, and the railway quoted at first £120 for taking the machines up, but afterwards said there was a mistake, and required £780. Of course, he lost the contract. Incidentally, it may be remarked that the South African railways are owned and operated by the State.

Complaints were made that over £80,000 was wasted in the Cairo-Cape flight, out of only £150,000 voted for the whole of the aerial services. Another item of £35,000 was apparently incurred in taking certain machines from overseas up to Pretoria, when they could just as well have been flown there. By the time these liabilities had been provided for, some £45,000 only is available for running the Air Force for the next twelve months.

These matters, which we have simply quoted because they appear to form the basis of complaint against the Government, would indicate that there is a woeful want of understanding on the part of the South African Government of the real value of aviation to a country of great distances and sparse facilities for communication. It is passing strange that there should be such a want of realisation of the possibilities, since aviation has been familiar to the South Africans from the earliest days. We believe we are right in saying that it was a party of South African officers who were among the first of the Overseas aviators to come to England for a final course of instruction early in the War. Indeed, we are not sure that Major Wallace's party was not the absolute first. This would indicate an appreciation of the possibilities of military aviation, which makes the present attitude all the more strange.



THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN AUG. 21 AND AUG. 27, INCLUSIVE

Route†	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and (in brackets) Number of each type flying
			Mails	Goods				
Croydon-Paris ...	44	159	11	22	40	2 h. 58	Breguet F-ADAV (2h. 11m.)	B. (6), D.H.9 (2), D.H.18 (2), G (4), H.P. (2), Sp. (8), V. (1).
Paris-Croydon ...	44	211	17	28	36	3 h. 11	Breguet F-ADAH (2h. 15m.)	B (8), D.H.9 (2), D.H.18 (2), G. (4), H.P. (2), Sp. (6), V. (1).
Croydon-Brussels ...	9	12	5	4	6	2 h. 55	D.H.4 O-BATO (1h. 57m.) ..	D.H.4 (5), G. (2).
Brussels-Croydon ...	6	28	5	5	4	2 h. 34	D.H.4 O-BALO (2h. 26m.)	D.H.4 (2), D.H.9 (1), G. (2)
Croydon-Amsterdam ...	8	7	6	6	8	3 h. 22	Fokker H-NABM 2h. 50m.)	D.H.9 (3), F. (3),
Amsterdam-Croydon ...	6	13	5	5	5	4 h. 32	Fokker H-NABJ (3h. 27m.)	F. (3).
Totals for week ...	117	430	49	70	99			

* Not including "private" flights.

† Including certain journeys when stops were made en route.

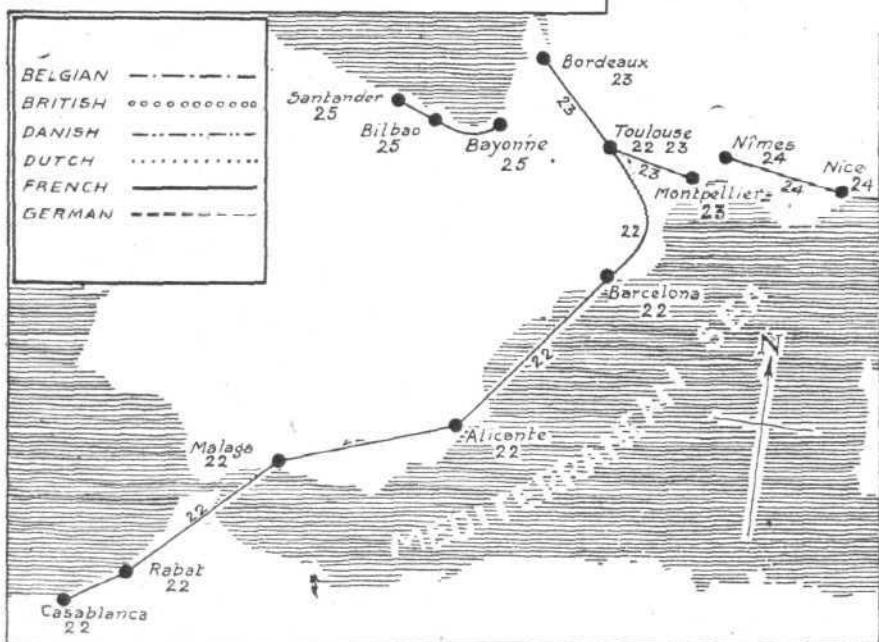
‡ Including certain diverted journeys.

AIR LINES OF TODAY

Time-Tables of the Various Services

WE have had occasion recently to refer to new aerial timetables containing information relating to the various regular air services now in operation. Each of these deals with the subject very thoroughly and to reproduce them in full in a weekly journal would obviously be out of the question. As, however, we have thought that a certain amount of information on the subject might not be without interest to readers of FLIGHT, we have endeavoured in the following notes, tables and accompanying chart-diagram to incorporate in brief form such information as may be considered to be of general interest. The notes do not lay claim to completeness, as space forbids the inclusion of much matter which touches upon the running of the services, but which is not of primary importance to forming an opinion of the extent, frequency and route of the various air lines. With regard to the times given, these are, as regards the times of arrival at any rate, approximate only, as it is impossible to guarantee them to a minute. They do, however, represent fairly accurately the average times for the journeys in question.

A glance at the accompanying chart-diagram will help to form a mental picture of the location of the various routes. The figures printed along the routes and against names of towns indicate the numbering of the various lines in the following notes and tables. In order to facilitate identification, the route lines on the chart have been drawn in different styles, according to the nationality of the services operating. Where services of more than one nationality are running, corresponding lines have been drawn side by side over the route. For instance, on the London-Paris line both French and British firms are operating.



Consequently two lines are drawn, one representing each nationality.

Coming now to the actual services, the one which is perhaps of most interest to readers of FLIGHT, and which has therefore been numbered 1, is the

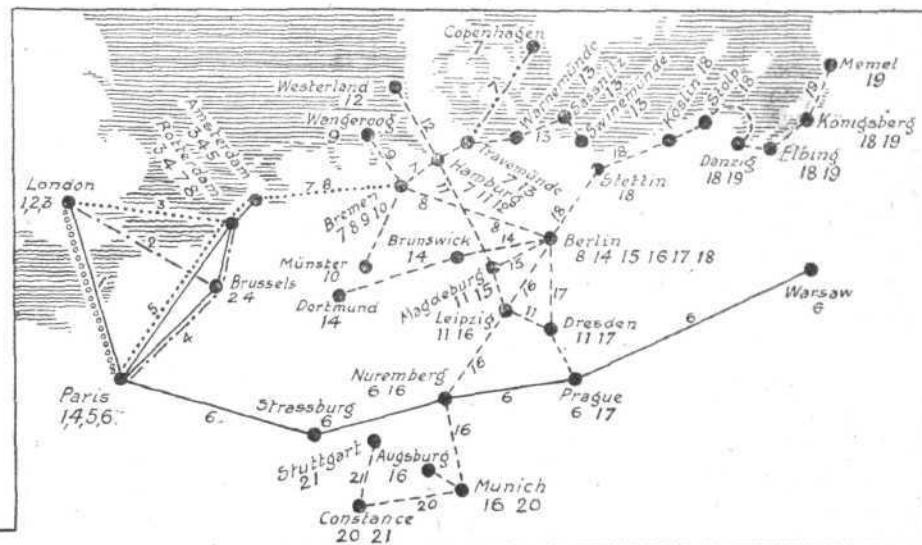
(1) London-Paris

This service is daily, except Sundays, and is operated at present by four firms: Handley Page Transport, Ltd.; Instone Air Line, Messageries Aériennes; and Grands Express Aériens. Of these the first two are British and the last two French. In the following table the firms are indicated by the abbreviations H.P., I.A.L., M.A., and G.E.A., respectively. The fares are, for all services, £6 6s. od. single and £12 return. Following are the times of departure and arrival of the various services:—

	M.A.	I.A.L.	H.P.	G.E.A.	M.A.
London (Croydon) ..	dep. 10.00	10.30	12.30	12.45	4.00
Paris (le Bourget) ..	arr. 12.30	1.15	3.30	3.30	6.30
		M.A.	H.P.	M.A.	G.E.A. M.A. I.A.L.
Paris (le Bourget)	dep. 9.00	11.15	12.45	12.45	4.00
London (Croydon)	arr. 12.00	2.30	3.15	3.30	6.30
					6.45

It should be pointed out that these times do not necessarily represent the entire services. In case of heavy demand for seats extra services are frequently run, but as these are less regular they cannot well be tabulated.

In the following tables we have adopted, in order to save as much space as possible, the Continental method of arranging



the names of the "stations" in the centre, with the times of departure and arrival at each side. Consequently the left-hand column of figures should be read downwards, the right-hand column upwards, as indicated by the arrows.

(2) London-Brussels

At the present time only one firm is operating a regular air-service on the London-Brussels route. This is a Belgian company: Syndicat National pour l'Etude des Transports Aériens, usually abbreviated to S.N.E.T.A. Up till recently this service has been run mainly with converted war machines having small seating accommodation. Consequently the load carried has been mainly mails. Now, however, larger and more commercial machines have been acquired, and more passengers are carried. The approximate times of departure and arrival are as follows:—

12.30	↑ dep. London	arr. 3.00
3.00	↓ arr. Brussels	dep. 12.00

Under the new British subsidy scheme there is a probability that a British firm will inaugurate a regular service on this route.

(3) London-Rotterdam-Amsterdam

This service is at present being maintained by the Koninklijke Luchtvaart Maatschappij voor Nederland en Kolonien, usually abbreviated to K.L.M. The machines used are Fokker monoplanes, but the engines are British (Siddeley "Pumas"), and the pilots are British. On this route also it is probable that a British firm will commence operation when the new subsidy scheme is in working order. The present time-table is approximately as follows:—

10.00	↑ dep. London	arr. 5.30
1.15	↑ dep. Rotterdam	dep. 2.45
1.45	↓ arr. Amsterdam	dep. 2.00

(4) Paris-Brussels-Rotterdam-Amsterdam

This service is now operated daily (except Sundays) by the Compagnie des Messageries Aériennes (M.A.), according to the following time-table:—

12.30	dep.	Paris	arr.	1.45
2.30	arr.	Brussels	dep.	11.45
3.00	dep.	Brussels	arr.	11.15
4.00	arr.	Rotterdam	dep.	10.15
4.15	dep.	Rotterdam	arr.	10.00
4.45	arr.	Amsterdam	dep.	9.30

(5) Paris-Amsterdam

In addition to the daily service by M.A., there is another service running direct, without the intermediate landings at Brussels and Rotterdam, operated by Compagnie Générale de Transports Aériens. The machines run by this firm leave Paris (le Bourget) on Tuesdays, Thursdays and Saturdays, and Amsterdam (Schiphol) on Mondays, Wednesdays and Fridays, at the following times:—

10.00	dep.	Paris (le Bourget)	arr.	5.00
1.45	arr.	Amsterdam (Schiphol)	dep.	1.30

(6) Paris-Strassburg-Prague-Warsaw

Until recently this service was run on alternate days only. Now, however, machines leave daily (except Sundays) in each direction, covering the entire journey in one day. The firm operating this service is the Compagnie Franco-Roumaine, and the time-table kept is approximately the following, although on so long a journey variations are bound to occur:—

6.00	dep.	Paris	arr.	6.30
9.30	dep.	Strassburg	dep.	4.00
2.00*	dep.	Prague	dep.	11.30*
6.30*	arr.	Warsaw	dep.	8.00*

* Indicates Central European time. The other times are French summer time.

Germany's Air Lines

In a recent issue of FLIGHT we published the reply given in Parliament by the Secretary of State for Air to a question by Mr. Raper concerning the position of German aviation. Capt. Guest in his reply gave a great deal of information on points which would be outside the scope of the present article to deal with, but which is, nevertheless, of the very greatest interest in connection with the German time-tables printed below. We would therefore recommend readers who desire more detailed information on the method of allocating the German subsidy, on postal and freight rates, etc., to refer to our column "In Parliament" (FLIGHT, Aug. 18). At the same time our time-tables will supplement some of the statements made by the Secretary of State for Air, so that between the two sources of information it should be possible to form quite a good idea of the present position and magnitude of German civil aviation.

**(7) Rotterdam-Amsterdam-Bremen-Hamburg
(Copenhagen).**

This air line forms the main link of communication between France and northern Germany and England and northern Germany. Regular daily services are being run by the Deutsche Luft-Reederei (over the Bremen-Hamburg portion of the route) and the Koninklijke Luchtvaart Maatschappij (over the Rotterdam-Amsterdam-Bremen part). Originally the service was continued from Hamburg to Copenhagen, this stage being maintained by Det Danske Luftfartselskab. This portion of the route is not now in regular operation, although we understand that through-bookings can be arranged specially. In the following time-table it should be noted that as regards the German towns the times given are Central European times, while those for Holland are Dutch summer time:—

9.30	dep.	Rotterdam	arr.	6.00
10.00	arr.	Amsterdam	dep.	5.30
10.15	dep.	Amsterdam	arr.	5.15
12.25	arr.	Bremen	dep.	2.30
1.00	dep.	Bremen	arr.	2.00
2.00	arr.	Hamburg	dep.	1.00

(8) Berlin-Bremen

This service is so arranged as to link up with Service No. (7) from Rotterdam and Amsterdam. It is carried out by the German firm Lloyd-Luftverkehr Sablatnig:—

7.30	dep.	Berlin	arr.	3.30
10.30	arr.	Bremen	dep.	12.30

(9) Bremen-Wangeroog

The Lloyd-Luftverkehr Sablatnig are running a daily service from Bremen to Wangeroog, the easternmost of the East Friesian Islands. The trip only occupies one hour, and is, we believe, very popular:—

8.30	dep.	Bremen	arr.	11.30
9.30	arr.	Wangeroog	dep.	10.30

(10) Bremen-Munster

This service is being maintained by the Lloyd-Luftverkehr Sablatnig.

2.30	dep.	Bremen	arr.	11.30
4.00	arr.	Munster	dep.	10.00

(11) Hamburg-Magdeburg-Leipzig-Dresden

The Deutscher Luft-Lloyd firm is maintaining this service, the daily trip occupying approximately 4½ hours.

10.00	dep.	Hamburg	arr.	1.30
12.00	arr.	Magdeburg	dep.	11.30
12.15	dep.	Magdeburg	arr.	11.00
1.15	arr.	Leipzig	dep.	10.00
1.30	dep.	Leipzig	arr.	9.45
2.15	arr.	Dresden	dep.	9.00

(12) Hamburg-Westerland

Deutsche Luft-Reederei maintains this service.

9.00	dep.	Hamburg	arr.	6.30
10.30	arr.	Westerland	dep.	5.00

(13) Travemunde-Warnemunde-Sassnitz-Swinemunde
(Seaplane Service)

Two firms are operating on this route: Deutsche Luft-Reederei and Lloyd-Luftverkehr Sablatnig.

10.30	dep.	Travemunde	arr.	5.00
11.30	arr.	Warnemunde	dep.	4.00
12.00	dep.	Warnemunde	arr.	3.30
1.30	arr.	Sassnitz	dep.	2.00
2.00	dep.	Sassnitz	arr.	1.30
3.00	arr.	Swinemunde	dep.	12.30

(14) Berlin-Brunswick-Dortmund

Deutsche Luft-Reederei.

9.00	dep.	Berlin	arr.	.00
10.45	arr.	Brunswick	dep.	3.15
11.45	dep.	Brunswick	arr.	1.
1.30	arr.	Dortmund	dep.	10.30

(15) Berlin-Magdeburg

Service by Deutscher Luft-Lloyd.

10.30	dep.	Berlin	arr.	1.15
11.45	arr.	Magdeburg	dep.	12.00

(16) Berlin-Leipzig-Nuremberg-Munich-Augsburg

Service by Rumpler Luftverkehr.

8.00	dep.	Berlin	arr.	2.15
9.15	arr.	Leipzig	dep.	1.00
10.00	dep.	Leipzig	arr.	12.30
12.15	arr.	Nuremberg	dep.	10.15
12.30	dep.	Nuremberg	arr.	10.00
2.00	arr.	Munich	dep.	8.30
2.15	dep.	Munich	arr.	8.10
2.40	arr.	Augsburg	dep.	7.45

(17) Berlin-Dresden (Prague)

A regular service is maintained by the Deutsche Luft-Reederei as far as Dresden. The continuation of this line to Prague appears at present to be somewhat uncertain, as no time-table is obtainable. Probably the reason is that, under the terms of the Peace Treaty, Germany is not allowed to operate this stage of the route, and that the Prague end of the service is not yet in running order. As far as Dresden the time table is as follows, the machines leaving Dresden in the morning and Berlin in the afternoon.

4.00	dep.	Berlin	arr.	8.45
5.30	arr.	Dresden	dep.	7.15

(18) Berlin-Stettin-Danzig-Konigsberg

Service by Lloyd-Ostflug.

8.45	dep.	Berlin	arr.	4.15
9.45	arr.	Stettin	dep.	3.15
9.55	dep.	Stettin	arr.	3.05
1.50	arr.	Danzig	dep.	11.10
2.05	dep.	Danzig	arr.	10.55
3.15	arr.	Konigsberg	dep.	9.45

(19) Danzig-Konigsberg-Memel

In continuation of a good railway service between Berlin and Danzig, the Danziger Luft-Reederei is operating a daily service over this route, the time-table being as follows:—

10.00	dep.	Danzig	arr.	6.30
11.30	arr.	Konigsberg	dep.	5.00
12.00	dep.	Konigsberg	arr.	4.30
1.30	arr.	Memel	dep.	3.00

(20) Munich-Constance

Service by Bavarian Luft-Lloyd:—

7.30	dep.	Munich	arr.	11.55
9.25	arr.	Constance	dep.	10.00

(21) Stuttgart-Constance

Service operated by P. Strähle :—

11.15	dep.	Stuttgart	arr.	2.00
12.45	↓	arr. Constance	dep.	12.30

This service is the last of those at present operating regularly in Germany. We now turn to those operated by French companies in the south of France, Spain, and Africa.

(22) Toulouse-Alicante-Casablanca

This service, which covers long distances, partly over the sea, is operated by Compagnie Générale d'Enterprises Aéronautiques (formerly Lignes Latécoère). The length of the journey necessitates a stop being made over night at Alicante on both out and home journey. The time-table is as follows :—

10.30	dep.*	Toulouse	**arr.	3.00
1.00	arr. *	Barcelona	**dep.	12.30
2.30	dep.*	Barcelona	**arr.	10.30
6.00	arr. *	Alicante	**dep.	7.00
8.00	dep.**	Alicante	*arr.	4.00
11.30	arr. **	Malaga	*dep.	12.30
1.00	dep.**	Malaga	*arr.	11.30
4.00	arr. **	Rabat	*dep.	8.30
4.40	dep.**	Rabat	*arr.	7.50
5.30	↓	arr. ** Casablanca	*dep.	7.00

* Tuesday, Wednesday, Friday, Sunday.

** Monday, Wednesday, Thursday, Saturday.

(23) Bordeaux-Toulouse-Montpellier

Although at present there is no air line between Paris and Toulouse, there is a good train service, while, if desired, the traveller can go by train to Bordeaux and hence to Toulouse by air service No. 23, which is running daily (except Sundays) and is operated by Aero Transport Ernoul, according to the following time-table :—

4.30 p.m.	dep.	Bordeaux	arr.	10.30 a.m.
6.00 p.m.	arr.	Toulouse	dep.	9.00 a.m.
9.00 a.m.	dep.	Toulouse	arr.	6.0 p.m.
10.30 a.m.	↓	arr. Montpellier	dep.	4.30 p.m.

It will be seen that in both directions machines leave in the afternoon, stopping overnight at Toulouse.

(24) Nimes-Nice

This service runs two days a week only, Mondays and Thursdays.

7.15	dep.	Nimes	arr.	8.10 p.m.
10.05	↓	arr. Nice	dep.	5.30 p.m.

(25) Bayonne-Bilbao-Santander

The Compagnie Franco-Bilbaïne runs a daily service, Sundays excepted. The time-table is as follows :—

9.30	dep.	Bayonne	arr.	5.15
11.00	arr.	Bilbao	dep.	3.45
11.30	dep.	Bilbao	arr.	3.15
12.00	↓	arr. Santander	dep.	2.45

In addition to this daily service in both directions, there is an extra service leaving Bayonne at 9.00 a.m. on Mondays and arriving at Bilbao at 10.30. On Saturdays an extra machine leaves Bilbao at 3.30 p.m., arriving at Bayonne at 5.00 p.m.

In the foregoing tables we have attempted to give as reliable information as possible regarding the various

**Imperial Air Fleet Aeroplane Flags for New Zealand Premier**

A FAREWELL reception to the Prime Minister of New Zealand, the Right Hon. W. F. Massey, and Mrs. Massey, was given at the Hotel Victoria on August 23. During the evening Mr. Massey was presented by the Imperial Air Fleet Committee with a specially embroidered New Zealand flag in commemoration of the gift to New Zealand of the Imperial Air Fleet aeroplanes, the "Britannia" (in May, 1913) and the "Nottingham" (in 1917). Both these historical and highly prized machines are now in New Zealand.

Lord Desborough, president of the Imperial Air Fleet Committee, who was unable to be present, sent a letter of regret to Mr. Massey, in the course of which he wrote :—

"In a special sense it does seem ages ago in the history of British aviation since the beginning of 1913, when we as a committee raised funds in a sadly apathetic world from a comparatively few aviation enthusiasts, bought the best aeroplane we could, and got Hamel, the then greatest of British air pilots, to fly her from Dover to Cologne in order to give a practical demonstration of the powers of the aeroplane as an object-lesson to the Empire.

"It was, however, just in those pre-War apathetic times and the dark hours before the dawn of Britain's supremacy in the air and elsewhere, that we, a happy band of British brothers, made it our business and pleasure to encourage,

services at the moment existing. As, however, changes are bound to occur fairly frequently, we cannot guarantee the times given to be absolutely exact. They are, however, fairly accurate, and in order to keep them so we would invite the co-operation of the firms operating the various services. If they will be good enough to advise us of any changes made we will endeavour to bring the tables up-to-date at such intervals as appear to us necessary in order to ensure reasonable accuracy.

The services will probably come as a surprise to many who had not realised the extent to which air lines are already in operation. When it is realised that this is only a very small beginning, and that in a few years' time these services will be multiplied many times, one begins to get a faint idea of the way in which air transport is gradually becoming more and more a part of our daily lives.

Other Services in Being

In addition to the regular services enumerated above, several others are at present being organised or contemplated. Among those already being run experimentally is the service (postal and passenger) run by Svenska Lufttrafik Aktiebolaget between Stockholm, the Swedish Capital, and Reval, near the entrance to the Gulf of Finland. This route is of considerable interest, inasmuch as it lies entirely over the sea, and is of considerable length. The figure given is 450 kilos. (280 miles), although on the map it appears considerably shorter, unless, as seems possible, the machines fly out of their way in order to make a "landfall" at Dagö, an island in the Baltic. During the latter three weeks or so of July a service was maintained with two machines only, a Savoia 16, 300 h.p. Fiat engine, and a Junkers (seaplane) with 185 B.M.W. engine. Owing to postal requirements, it was originally intended that the machines should make the double journey in the day, and as there is no spare machine at Reval, this would be a considerable tax on both machines and pilots. From July 11 to July 29, both days included, these two machines made 12 journeys between them (the Savoia 2, and the Junkers 10) without mishap, carrying 9 passengers, 136 kilograms of goods and 127.1 kg. of mail. The shortest flying time (made by the Junkers on July 26) was 2 hrs. 10 mins., and the longest 3½ hours. The average flying time was 2 hrs. 45 mins. As a start this is not at all bad, but unless subsidised one is doubtful whether the present amount of trade between Stockholm and Reval will enable the service to be carried on. Also, neither of the two types of machines is very suitable for the work, in the light of modern experience, and the absence of spare machines at Reval (we believe there is a Savoia standing by at Stockholm) must sooner or later result in the regularity of the service suffering.

Just as we are going to press with this article it is learned that the service between Berlin and Königsberg (No. 18) has been extended to Kovno. No details of the time-table are, however, available.

In Hungary, two commercial air lines are stated to have been inaugurated. One is between Budapest and Steinamanger and the other between Budapest and Szegedin. A third is expected to be opened between Budapest and Miskolcz.



by the practical propaganda of aeroplane presentations to the Dominions, the British oversea States to take an interest in flying and in asserting the Empire's power to successfully resist all possible attacks by air on the Empire's liberties."

In the absence of Lord Desborough, the presentation to Mr. Massey was made by Lord Morris.

Mr. Massey, in accepting the gift, said he believed aviation had a great future before it. He had a great deal of faith in the airship, and he did not think it was unlikely that the Prime Ministers of New Zealand and Australia would, in a future time, be conveyed by air to the councils of the Empire in a quarter of the time occupied now. The time occupied in journeys was at present one of the great difficulties in the conduct of Imperial affairs.

A Maharaja Helps Forward Aviation

At Allahabad the Maharaja of Bharatpur has, according to the *Daily Telegraph* correspondent, opened an aviation academy with a fully qualified aeronautical staff. The academy proposes to deal with every branch of aviation, including flying instruction, instruction of ground staff, the sale and erection of aeroplanes, and passenger flying. His Highness has fitted out a large aerodrome occupying over 1,500 square yards, which has a good surface throughout. Would-be owner-pilots will have the use also of the splendidly equipped Bharatpur workshops.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

CROYDON AVIATION RACE MEETING

THE Aircraft Disposal Co., Ltd., have kindly offered the Royal Aero Club the use of the following five machines for competitors in the Aviation Race Meeting to be held at Waddon Aerodrome, Croydon, on Saturday, September 17, 1921:—

S.E.5.A.	220 h.p. Wolseley Viper.
S.E.5.A.	220 h.p. Wolseley Viper.
S.E.5.A.	220 h.p. Wolseley Viper.
Sopwith Snipe	200 h.p. B.R. 2.
D.H.9A.	400 h.p. Liberty.

In addition to the above machines the following club machines are available:—

B.E.2.e (two-seater)	90 h.p. R.A.F.
Avro (two-seater)	110 h.p. Le Rhone.
Avro (two-seater)	110 h.p. Le Rhone.
Avro (two-seater)	110 h.p. Le Rhone.

Qualified pilots wishing to take part in the races, may hire any of these machines from the Royal Aero Club, at £3 for each event, which will include, cost of petrol, oil and insurance of machine.

Application for these machines should be made direct to the Club, and they will be allotted in the order in which applications are received.

In the Club Handicap which forms part of the programme passengers must be carried. Seats in the machines may be booked at the Royal Aero Club at £1 each.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments are notified:—

Flight-Lieut. R. Young from R.A.F. Depôt (Inland Area) to School of Technical Training (Men) (Inland Area). Date 21.8.21.

Flight-Lieut. A. Rowan from Egyptian Group Headquarters (M. E. Area) to R.A.F. Depôt (Inland Area). Date 13.8.21.

Flight-Lieut. H. A. Tweedie, O.B.E., A.F.C., from No. 7 Group Headquarters, (Inland Area) to Air Ministry (D.T.O.). Date 24.8.21.

Flight-Lieut. J. W. Woodhouse, D.S.O., M.C., from R.A.F. Depôt (Inland Area) to Inter-Alied Aeronautical Commission of Control, (Hungary). Date 1.8.21.

Wing Commander C. E. C. Stanford, D.S.O., M.B., B.Sc., from Headquarters, Inland Area to Inspector of Recruiting (Coastal Area). Date 16.8.21.

Sqn.-Leader C. H. K. Edmonds, D.S.O., O.B.E., from No. 7 Group Headquarters, Inland Area, to Air Ministry (D.T.O.). Date 22.8.21.

Sqn.-Leader G. R. M. Reid, D.S.O., M.C., from No. 1 School of Technical Training (Boys), (Halton), to School of Military Administration, Chiseldon. Date 23.9.21.

Sqn.-Ldr. W. V. Strugnell, M.C., from No. 1 Flying Training School (Inland Area) to School of Military Administration, Chiseldon. Date 23.9.21.

Sqn.-Ldr. R. B. Maycock, O.B.E., from No. 230 Squadron, Coastal Area, to School of Military Administration, Chiseldon. Date 23.9.21.

Flight-Lieut. H. Stewart from No. 267 Squadron (Mediterranean Group) to School of Military Administration, Chiseldon. Date 23.9.21.

Flight-Lieut. J. T. Vernon, from M. T. Repair Depôt (Inland Area), to School of Military Administration, Chiseldon. Date 23.9.21.

Flight-Lieut. E. R. Bastard from R.A.F. Depôt (Inland Area) to No. 24 Squadron (Inland Area). Date 9.8.21.

Flight-Lieut. I. L. Wincer from Air Pilotage School (Cadre), (Inland Area), to No. 4 Stores Depôt. Date 29.8.21.

Flight-Lieut. A. G. N. Belfield, from Air Pilotage School (Cadre), (Inland Area) to No. 4 Stores Depôt. Date 29.8.21.

Group-Capt. C. R. Samson, C.M.G., D.S.O., A.F.C., from R.A.F. Depôt (Inland Area) to command Headquarters Mediterranean Group. 18.8.21.

Sqn.-Ldr. K. Biggs, M.C., D.P.H., to Headquarters Coastal Area on ceasing to be attached R.A.F. Central Hospital. 19.8.21.

Sqn.-Ldr. B. A. Playne, D.S.O., M.B., B.A., from R.A.F. Depôt (Inland Area) to R.A.F. Central Hospital. 19.8.21.

Sqn.-Ldr. J. T. Babington, D.S.O., from R.A.F. Depôt (Inland Area) to No. 6 Flying Training School (Inland Area). 29.8.21.

Sqn.-Ldr. P. A. Shepherd to No. 267 Squadron (Mediterranean Group) on ceasing to be attached Aircraft Depôt, Egypt. 31.7.21.

Flight-Lieut. A. Latimer to Coastal Area Aircraft Depôt (Coastal Area) on ceasing to be attached School of Photography. 13.8.21.

Flight-Lieut. R. C. Preston, A.F.C., to Boys' Wing R.A.F., Cranwell, on ceasing to be attached School of Photography. 13.8.21.

Flight-Lieut. R. Halley, D.F.C., from R.A.F. Depôt (Inland Area) to Headquarters (Inland Area). 1.9.21.

Flight-Lieut. D. W. Clapperton to R.A.F. (Inland Area). 2.7.21.

Flight-Lieut. A. W. Bird, D.S.O., from No. 4 Flying Training School (Middle East Area) to Half-pay List. 2.7.21.

Flight-Lieut. C. B. Dick-Cleland, from Air Pilotage School (Cadre) (Inland Area) to R.A.F. Airship Base (Coastal Area). 1.9.21.

Flight-Lieut. T. C. Miller, M.C., from Stores Depôt, Egypt, to Headquarters, Middle East Area. 22.6.21.

Disbandment of No. 3 Group Headquarters.—The Headquarters No. 3 Group, Spittlegate, will be disbanded early this month. From this date the undermentioned units now forming No. 3 Group, will be controlled as follows:—

Place.	Unit.	To be controlled by
Coal Aston	Care and maintenance party.	Area Headquarters direct.
Digby	No. 3 Flying Training School (Cadre)	
Bircham Newton	No. 207 Squadron	
Martlesham Heath	Aeroplane Experimental Establishment	
Orfordness	Detachment of Aeroplane Experimental Establishment	
Duxford	No. 2 Flying Training School	
Spittlegate	No. 39 Squadron	
Shotwick	No. 5 Flying Training School	No. 7 Group Headquarters

Vacancies for Storekeepers.—There are several vacancies in the Air Force for storekeepers. Applicants should be men of clerical ability and should be between the ages of 18 and 28 and prepared to enlist for six years' Regular Air Force Service and six years' Reserve Service.

The rate of pay on entry is from 3s. 6d. to 4s. 6d. per day according to efficiency, rising on promotion to 15s. per day, and in addition rations, fuel, light, quarters, medical attendance and clothing are found. Marriage allowance is paid to married men over 26 years of age, and 28 days' annual leave is granted on full pay.

R.A.F. Unemployed List

In the *London Gazette* of August 30 the Air Ministry announces that all officers who are on the unemployed list of the Royal Air Force on August 31, 1921, are released from further liability to serve as officers of the Royal Air Force.

They will relinquish their commissions with effect from September 1, 1921, with permission to retain the rank which was notified to them in the Air Ministry letter intimating that they were transferred to the unemployed list.

THE "R.38" DISASTER

It is with the most profound regret that we have to record this week the terrible disaster which overtook our latest rigid airship, "R.38," at Hull on August 24 during a trial flight. The calamity is the greater because of the number of valuable lives lost, counting among them many of the most capable and distinguished airship experts of this country and America. Thus the disaster has robbed us, in one brief moment, of much of the accumulated science and experience gathered at great labour and expense during years of research and constructional work. To the relatives and friends of those who perished we offer our heartfelt sympathy in their great bereavement, and, although we fully realise that nothing can compensate them for their irreparable loss, we would ask them to try to derive a certain amount of comfort from the thought that the gallant dead were pioneers in a great cause, and that, even in their sacrifice, they have added to our knowledge, and so have helped to make flying safer for those who are to follow. It now becomes our duty to see that the most searching enquiry is made as to the cause of the disaster, and to incorporate the information thus gained in improved ships. To think of abandoning airships would be treachery to those who have given their lives in the great cause, and would render their sacrifice in vain.

The Accident

As regards the disaster itself, the airship had been cruising about between Howden and Pulham during the day, as the original intention had been to land at Pulham on the evening of August 23, but it was decided to remain out overnight and continue the trials. Shortly after 5.30 p.m. on August 24 the airship was seen to approach Hull, from where her progress was watched with the greatest interest by onlookers on the ground. While she was over the vicinity the spectators were horrified to see the great airship beginning to buckle in the centre, and then, amid flames and smoke, the ship broke in two, the stern portion dropping rather more slowly than the nose, which fell in the river. The tail part, shortly afterwards, also dropped into the river, and floated above the surface. During the fall of the airship, parachutes were seen to come floating down, one of which, it appears, fell amid the flaming wreckage. Rescue work was rendered difficult by the mass of smoke and burning petrol surrounding the wreck. Tugs were rushed to the rescue of the unfortunate crew, and ambulances were summoned. Ultimately five survivors were picked up and taken to the Royal Infirmary. Among these were the Captain of the ill-fated ship, Flight-Lieut. A. H. Wann, who had received injuries to the head and was suffering from burns. Later on a Central News representative is stated to have had an interview with the Captain, during which he is said to have made the following statement:—"I was in sole control of the vessel when the disaster happened. I was in the fore-car, and we had just passed over Hull when there was a violent crack. I felt the fore-car falling. Then it rose at a high angle, and I pulled over the water ballast to level keel. Then there was a terrific explosion. I think many of the crew must have been killed by the explosion. We had been sailing beautifully and had slowed down from 60 to 50 knots. I think it probable that several of the girders snapped when we turned. Some of the men jumped overboard when the ship fired. I remained aboard and went down with the ship until close to the water, when I jumped, and was caught in the wreckage and pinned down. I was there 15 minutes. I don't know how I was rescued, as I was unconscious, and awoke to find myself here. We were going to Howden, as the weather at Pulham was bad."

Asked whether any fire preceded the explosion, Lieut. Wann replied: "Not that I know of. I noticed none. We had done our full trial, and had slowed down when this happened. That is extraordinary, but I should think the snapping was due to some structural weakness. The whole thing happened in five seconds."

While publishing this interview, we do so with all reserve, as Capt. Wann's official statement has since been handed to the court of enquiry.

While this account was given by the Captain, who was in the fore-car, it is of interest to quote a statement made by Mr. H. Bateman of the N.P.L., who was in the extreme stern of the ship at the time of the accident, and who, therefore, would be better able to realise and know what happened in the aft part of the ship. Mr. Bateman, who was taking the measurements of the forces which act on the control surfaces, gave a graphic narrative of the disaster.

"There were three of us from the laboratory," he said,

"taking these measurements, which are for the guidance of designers of future airships in relation to the fins. The ship had just completed her first full-speed test, and she had touched 60 knots—the speed which they had hoped to attain. I was in the tail taking photographs of the pressure on the fins, and after we had gone at top speed for a quarter of an hour the speed was reduced to what I assume would be 45 or 50 knots. I heard from Maj. Pritchard that the controls were going to be moved fairly rapidly in order that the test might demonstrate the air-worthiness of the ship to cross the Atlantic. When the disaster occurred my feelings were that the ship was shaken three or four times in a lateral direction and a few times in a longitudinal direction.

"Explosions followed, and we knew we were doomed. The tail of the ship fell down. I was thrown into the cockpit, but my parachute was handy, and I attached myself to it and jumped overboard. The rope, however, got entangled with some gear we were carrying for experimental purposes, and I was left suspended over the side of the ship. In that position I fell with the tail to the water. The after-part of the ship fell fairly gently, and I regarded this as a happy omen for the crew. In the meantime Potter, who was working with me, had rushed forward to get his parachute, but that was impossible, and he ran back and stayed with me in the cockpit. Walker, an American, was in the fin at the time, and he stated he could see daylight forward up above ship, and he, too, rushed aft.

"On landing we saw two parachutes, which seemed entangled. One was open and the other closed. Two men were clinging to the former, which was seen to fall into the water 400 yds. from the ship on the port side. How Lieut. Wann escaped I cannot say. He was in the control car forward, and this part, being heavier, fell first. The wireless officer, Wicks, remained at his post to the last, even after the ship had broken in halves. He sent a message to Howden informing them of the disaster. We had been over Howden earlier in the afternoon, and we would have landed there in half an hour.

"Air-Commodore Maitland and Mr. Campbell, one of the builders' representatives, were with me ten minutes before the disaster. Everybody had been delighted with the behaviour of the ship and her control. She was put through severe tests and responded quite readily. The petrol tanks were in the water long before we fell. They were dislodged, and fell through the envelope when the ship broke. I think one tank must have exploded, or the petrol connection to the car caught fire. I did not see flames burst out on the airship, because I was at the tail and I had no view. We were in the water only a short time.

"I was standing on my parachute when picked up, and only waist-deep in water. Potter was sitting on the edge of the cockpit, and did not even get wet. Walker jumped into the river as the airship fell, and landed on a sandbank in mid-stream. In all probability the tail of the airship rested upon a sandbank, or the three after gas-bags remained intact and gave it buoyancy."

The Air Ministry at 11 p.m. on the day of the accident (August 24) announced that the disaster which led to the ship crashing in the river occurred while flying over Hull about 5.45 p.m.

The cause of the accident, the *communiqué* continued, is unknown, and owing to the fact that there are no Royal Air Force personnel stationed in the vicinity of the scene of the disaster great difficulty is being experienced in obtaining immediate official information. Air Ministry representatives were instructed at once to proceed to Hull.

The British and American officers and other personnel on board the ship were:—

British Officers :—Air Commodore E. M. Maitland, *C.M.G., D.S.O., A.F.C., Air Officer Commanding Airship Base, Howden; Flight-Lieut. A. H. Wann, Captain of the ship; Flight-Lieutenants G. M. Thomas, D.F.C.; I. C. Little, A.F.C.; R. S. Montagu, D.S.C. (Navigator); Flying Officers V. H. Wicks and T. F. Mathewson, A.F.C. (Engineer Officer); Flight-Lieut. J. E. M. Pritchard, O.B.E., A.F.C., Air Ministry representative.

National Physical Laboratory Representatives :—Messrs. J. R. Pannell, H. Bateman and C. W. Duffield.

Royal Airship Works Representatives :—Mr. C. I. R. Campbell, *Superintendent, Royal Airship Works, and Mr. F. Warren.

British—Other Ranks :—Flight-Sergeants S. J. Heath (314892), W. H. Greenly* (200501), H. Thompson (11507), F. Smith (314374), J. Rye* (314361), A. T. Martin*(200658);

A.C.1—C. W. Penson (201407); Sergeants—J. W. Mason, (313827), F. E. Burton (314136); Corporal W. P. Potter (314332); L.A.C.—G. S. Anger (343858), E. W. Davies (239019); A.C.1—J. C. Drew (239474), C. W. Donald (246147); L.A.C.—W. Oliver (92533); A.C.2—R. Parker (251086); A.C.1—E. E. Steere (231041); L.A.C.—J. N. Willson (314914); A.C.2—R. Withington (313300).

American Officers—Commander L. A. H. Maxfield, U.S.N.; Lieutenant Commanders W. N. Bieg,* U.S.N., and E. W. Coil,* U.S.N.; Lieutenants H. W. Hoyt, U.S.N., C. G. Little,* U.S.N., and M. H. Esterly,* U.S.N.

Americans—Other Naval Ranks—C.M.M.—L. E. Crowl, A. L. Loftin,* W. A. Julius, and G. Welch, J. T. Hancock, R. M. Coons, W. J. Steele; C.B.M.—C. J. Aller,* M. Lay, N. O. Walker, and A. D. Pettit.*

At the time of going to press the bodies of those marked * had been recovered.

The following are reported to have been saved:—

Lieut. A. H. Wann (the Captain); in hospital, injured, but not dangerously.

239019 L.A.C. E. W. Davies, in hospital, injured.

314332 Corp. W. P. Potter, uninjured.

C.M.M. N. O. Walker, uninjured.

Mr. Bateman (of the N.P.L.), uninjured.

The airship left Howden Airship Base at 7.10 a.m., August 23, for her fourth trial under the command of Flight-Lieut. A. H. Wann.

She reported her position at various times throughout the day, and proceeded to carry out different tests which had been arranged beforehand. At 8 o'clock, August 23, she signalled the following message: "Will remain out tonight to complete necessary trials. Several have already been successfully accomplished. Will land tomorrow."

The cruise therefore continued during the night, and on August 24, at seven o'clock, "R.38" reported that she was flying in the neighbourhood of Howden, from which she had started. She continued flying over the area between Howden and Pulham during the day, and at 1.15 she signalled "Will not land at Pulham until cloud height increases. Trials proceeding satisfactorily."

Later she requested Howden to fly a kite-balloon at 3,000 ft., and to give probable winds at that height, as she was going to carry out full-speed trials which were expected to take about an hour. This signal was sent to 15.50 and was followed by a further message timed 16.30, saying, "Carrying out full-speed trials."

Half an hour later, at 17.00, a signal was sent both to the Air Ministry and Pulham, saying "Landing Howden 18.30." Earlier in the day she had requested both Pulham and Howden to keep landing parties standing by, as the Captain of the ship wished to be in a position to land at the station which he considered most favourable from the meteorological point of view.

The last wireless transmission heard from the ship was at 17.34, when she acknowledged the receipt of a routine signal from Howden.

The airship was built at the Royal Airship Works, Cardington, Bedford, and after undergoing her airborne and engine trials in the shed, was considered ready for flight about June 20.

The first flight took place on the night of June 23, the ship leaving Cardington at 9.55 p.m. and landing after a six and a half hours' flight over the Home Counties at 4.20 a.m., June 24.

It was anticipated that owing to the airship being the first of a new class, modifications would probably be necessary, and, as previously announced, while the result of this first trial was considered satisfactory, it was decided to make modifications to the control system. This was done, and a further flight of about six hours' duration over the same area took place on the night of June 28-29. Careful tests were carried out as in the case of all new airships, and further modifications were determined upon.

Following these alterations, the third flight began about 7.30 p.m. on July 17, and the ship, after passing over many of the most important towns on the East Coast, landed at Howden Airship Base after a flight of about 9 hours. A speed of 50 knots was obtained without calling upon the full engine power. During the flight it was found that some of the girders amidships were weakened, but the flight was continued for some hours afterwards. The result of this trial was that reinforcements were considered necessary to the girders specified.

This work was carried out at Howden Airship Station, and was completed by July 30. Unfortunately, just before this date the unusually fine spell of weather was displaced by extremely disturbed conditions, and sufficiently fine weather did not occur for further trials to take place until August 23.

Later the Air Ministry announced that the Admiralty representative on the Humber reported that he had visited the wreck of the airship, which was half a mile south of Corporation Pier, Hull. He stated "The wreck appears to be in two portions. The whole vessel lies submerged in north-west direction in river in eight feet of water, the tail portion only showing and lying in about 4 ft. of water at half tide. The survivors escaped by parachute, and were picked up by tugs and small boats. The Customs House has been ordered to guard the wreck during the night, and an Air Force officer from Howden will patrol the river in a motor launch to look out for bodies and wreckage which may drift in the river."

On August 25, the Air Ministry announced that a Court of Enquiry had been convened to investigate the accident to "R.38". The Court assembled at Howden Airship Base, Yorkshire, on August 27, Air Vice-Marshall Sir John Salmon, K.C.B., C.M.G., C.V.O., D.S.O., A.O.C., Inland Area, R.A.F., presiding, the other members being Air-Commodore F. R. Scarlett, C.B., D.S.O., Group-Capt. A. M. Longmore, D.S.O., Group-Capt. A. B. Burdett, D.S.O., Wing-Comdr. T. R. Cave-Brown-Cave, D.S.O., D.F.C., Sqdn.-Ldr. D. Harries, A.F.C., and Sqdn.-Ldr. R. B. B. Colmore, O.B.E.

On August 26, the Air Ministry announced that careful consideration had been given to the question of admitting the Press to the Court of Enquiry, and that it had been decided that the enquiry must be private, a view which was fully agreed to by the American Naval Authorities. This decision is, however, without prejudice to the question of publishing subsequently the proceedings at the Inquiry.

Messages of Sympathy

The King sent the following telegram from Balmoral Castle on August 25 to Air-Marshal Sir H. M. Trenchard, Air Ministry:—

"I am shocked and grieved to hear of the terrible disaster which has befallen 'R.38,' resulting in the loss of many valuable lives, American and British, with the relatives of whom I deeply sympathise. I shall anxiously await further information."

"GEORGE R.I.,

"Chief of the Royal Air Force."

Queen Alexandra forwarded the following to the Secretary of State for Air:—

"I am shocked beyond measure at the terrible disaster to 'R.38,' and words cannot express my grief that so many gallant officers and men of the British and American Air Services have perished in the performance of their duty. It is a day of mourning for all of us at home and across the Atlantic, and I trust you will find it possible to convey to the relatives of those who have lost their lives my very true sympathy in their bereavement."

In addition messages were received by the Air Ministry from the Secretary of the U.S. Navy, the Secretary of the War Office and Lord Londonderry, formerly Under-Secretary of State for Air. The Secretary of the Admiralty, and the French Under-Secretary of State for Air. Messages have also been exchanged between the King and the American President.

The Prime Minister promptly sent a message to President Harding, offering to convey the bodies of the dead Americans home in a British warship, an offer which was speedily and gratefully accepted by the President.

The Cause of the Accident

Until a searching enquiry has been made into the circumstances surrounding the accident, it is impossible definitely to assign the cause of the accident, and it is only possible to surmise the merest outline of what happened, based on the statements of eye-witnesses who cannot be assumed to have had technical knowledge.

In the first instance it would appear that one or more of the longitudinal girders bent or snapped, after which the airship buckled and fire broke out. That this happened not during the high-speed test, but afterwards, can be understood if one bears in mind that, according to the statement of Mr. Bateman, rudder tests were carried out afterwards. It is conceivable that some of the girders may have been strained during the high-speed test without actually breaking. Then, accepting as a fact the statement that manœuvrability tests were carried out afterwards at reduced, although still fairly high, speed, the great stresses set up in turning or diving or elevating or a combination of these, the strained girders snapped. This having occurred it is obvious that the ship would buckle up, and the matter of fire is then almost a certainty. As the girders were parting they would probably strike a series of sparks which would ignite the mixture of hydrogen and air existing around the broken part of the hull, and thus start a conflagration. Added to this the petrol in the tanks in the keel of the hull would either burst or come adrift, and the petrol fumes would be added to the mixture

of hydrogen and air. This fact may, and probably does, also account for the explosions.

It has been stated that it is curious that there should be explosions, as these were never associated with German Zeppelins falling in flames during the War. In the case of the Zeppelins, however, the airships were flying normally on a more or less even keel when set on fire by incendiary bullets. The resulting fire would occur where the hydrogen streamed out of the holes in or near the top of the airship, and as the mass began to fall the flames would be, so to speak, trailing above the airship. In this case, however, the ship broke in two, and the loose petrol was added to the burning mixture of hydrogen and air. It is conceivable that it was not even necessary for the petrol to fall on to the hot engines in order to start the petrol burning.

Thus, at the moment only one thing appears fairly clear; one or more girders broke, and this was followed by fire. As to the reason for the breaking of the girders this can only be ascertained by a full technical enquiry. It is now no longer a secret that trouble had been experienced with some of the girders during previous tests, and that reinforcements had proved necessary. No doubt the enquiry will bring to light facts relating to the nature of these alterations, and possibly also show whether or not the girders that broke were the same as those which had been strengthened.

"R.38" was designed to have a high ceiling—27,000 ft.—and to this end her construction was kept as light as was considered consistent with adequate strength. In order to ensure lightness, several departures from standard practice were incorporated, among which the employment of fewer gas bags. This would naturally result in a greater portion of the hull being affected in the case of over or under filling of one bag, while the girder length between frames would be increased. Whether or not this form of design was responsible is not for us to say. This, like other points arising, must be dealt with by the competent authorities who are holding the enquiry.

Those who Perished

A fact which renders the accident all the more lamentable is that, the flight being one for the purpose of thoroughly trying-out the ship, there were on board a number of our and America's leading airship experts, and thus the disaster has robbed the world of the cream of the airship services to whom we were looking for that guidance in technical airship matters which was to give us the craft with which future airship routes would be operated. The blow is therefore doubly heavy, and will be a severe handicap in the future development of commercial airships. However, the least we can do is to carry on in the spirit in which those gallant souls died, and to do our best to benefit by the terrible lesson learnt and thus advance one step further towards ultimate victory.

Air-Commodore E. M. Maitland, C.M.G., D.S.O., was the elder son of the late Mr. Arthur Maitland, Barrister-at-Law, of Shudy Camps Park, Cheshire. Born in 1880, he was educated at Haileybury, and at Cambridge (Trinity), and saw service in South Africa. In 1908, he first came before the public in connection with a balloon journey, in company with the Frenchman M. Gaudron and Maj. C. C. Turner, from London to Russia, a distance of 1,117 miles which is, we believe, a record to this day. In the very early days of flying, Maitland built and flew his own aeroplane, on which he had a crash that resulted in his breaking both ankles. However, nothing daunted, he continued to fly after he got well again, and did a great deal of ballooning and also airship work. In 1913, he was placed in charge of No. 1 (Airships) Squadron of the R.F.C. at Farnborough, in which capacity he did some very valuable work. He was an early believer in parachutes as life-saving appliances, and he it was who made the first parachute jump from an airship in flight. Early in 1914, he was gazetted Wing-Commander in the R.N.A.S., the Admiralty having taken over the Army airships. Shortly before the outbreak of War, Maitland was in Germany in connection with trials of a Parseval airship, but he managed to get back safely to this country. In November of 1914 he went out to Belgium on work connected with the R.N.A.S., taking with him a kite balloon, and also the small non-rigid airship "Beta." While out there he saw some of the captive balloons in use by the Belgians and French, and so impressed was he by their possibilities that he came home especially to urge the extensive use of kite balloons for observation purposes. When the kite balloon station was established at Roehampton in 1914, Col. Maitland was appointed to command it, and in this capacity he did excellent work, always being the first to try out any experiments entailing any personal risk. One

of his experiments in this way was a journey in a kite balloon slipped from her moorings, undertaken in order to discover if it was possible to make a safe landing in case of a balloon breaking away.

While stationed at Roehampton, Maitland also carried out a series of parachute descents, including one from 10,000 ft. with a view to studying the phenomenon of "swinging." Later he was appointed to command the airship station at Pulham, where he continued his experiments. In 1917 he was called to the Admiralty to take charge of the Airships Headquarters Staff. It was almost entirely due to his personal effort that a greatly increased programme of airship construction was inaugurated. When the R.A.F. was formed in 1918, Col. Maitland was given acting rank of Brigadier-General, and in 1919 he was awarded the C.M.G. In that year also, it may be remembered, he made the double trip across the Atlantic in the "R.34," his log of the trip having since been published. After the return of "R.34," Gen. Maitland became O.C. of the airship base at Howden, and he made a close study of the commercial possibilities of airships, with the result that he became thoroughly convinced that airships have a brilliant future as civil aircraft.

Maj. J. E. M. Pritchard, R.A.F., was born at Leighton Buzzard, Bedfordshire, in 1889. His father was of Welsh origin, but was born in the United States, and fought there during the Civil War. Maj. Pritchard was educated privately and at Cambridge, where he took the degree of Master of Arts. Following a post-graduate course at the Royal School of Mines, he was elected a Fellow of the Royal Geological Society, and then took up his career as Mining Engineer. When war broke out Maj. Pritchard joined the R.N.A.S. as Flight-Sub-Lieut. He was posted to Roehampton Kite-Balloon Station, and passed out in ballooning and aerostatics. In 1915 he was posted to R.N. Airship Station at Kingsnorth, and later to Polegate, in command of "S.S.9" (Zero type). Early in 1916 he was posted to R.N. Airship Station, Mudros, Eastern Mediterranean, in command of "S.S.3," where he made a Mediterranean airship record of 8½ hours' flying. Late in 1916 he was posted to Polegate again, this time as Senior Flying and Experimental Officer. In January of 1917 he was sent to East Fortune airship station as Commanding Officer of "C.24" (coastal type). Two months later he was transferred to Howden as Commanding Officer of the Parseval airship "P.6," and in August of the same year he was posted to Cranwell. September, 1917, saw him posted to Admiralty Airship Department for Rigid Acceptance Pilot and Technical Flying Duties. During the latter part of 1917 and in 1918 he examined the various airships brought down, and wrote reports on them, as well as translating note-books, log-books, etc., found on board or on the crews. As Technical Airship Officer, he went to Germany after the Armistice, and in 1919 he was Admiralty Airship Representative to the Peace Conference in Paris. As will be remembered, he made the flight to America and back in the "R.34," jumping out in a parachute to give instructions to landing party on the other side. From October, 1919, to date he was Acceptance Pilot, and did Technical Flying Duties under the Airship Experimental and Research Division of the Air Ministry.

It might be added that Maj. Pritchard was keenly interested in the internal combustion engine, and he had great faith in the slow-running heavy oil engine for airship work. He was a strong advocate of the Ricardo engine, and used all his influence to obtain extensive research work on engines of this type. Like a good many other airship experts, he was of the opinion that the greatest danger to airships arose from the petrol fumes and not from the hydrogen, hence his desire to see the heavy oil engine developed.

Mr. C. I. R. Campbell, O.B.E., M.I.N.A., R.C.N.C., F.R.Ae.S., was Chief Designer and Superintendent of the construction of the "R.38" at Cardington. He was undoubtedly our foremost airship designer, and his death is a great loss to the future progress of airship design and construction. While at the Royal Naval Engineering College, Devonport, he obtained the Newman Memorial Prize for highest proficiency in engineering subjects. From 1899 to 1903 he was at Royal Naval College, Greenwich, and from 1904 to 1908 he was at the Admiralty, chiefly engaged upon submarine design work. From 1908 to 1915 he was Admiralty Overseer at various works at home and abroad, superintending the building of various vessels. In 1915 he was put in immediate charge of airship design work at the Admiralty, and in 1920 was appointed Superintendent of airship design and construction at the Royal Airship Works at Cardington, Bedford. This post he held up to the time of his death.

America's Dead

No less a loss than our own is that sustained by America in the disaster. Like us, she has lost some of the very best of her airship officers and men, and to her we offer our heartfelt sympathy.

Comdr. Louis H. Maxfield, U.S.N., who was in charge of the U.S. Rigid Air Detachment in training at Howden, and who was to be the Commanding Officer of the ill-fated airship on the flight to America, was born in 1883 at St. Paul, Minnesota. He entered the Naval Aviation service in 1914, and was promoted to Temporary Commander in 1918. During the War he was in command of the U.S. Naval Station at Painboeuf, France, and served with distinction. During a flight in the French airship "Capitaine Caussin" he dived overboard from a great height and rescued an enlisted man who had fallen overboard. Comdr. Maxfield was decorated by the Italian Red Cross with a silver medal for distinguished work during the Messina earthquake, with the French Naval

Life-saving Medal (Silver), was an Officer of the Legion of Honour, and was decorated by the U.S. Government with the Navy Cross and the Victory Medal.

Lieut.-Comdr. Emery W. Coil, U.S.N., was Comdr. Maxfield's second in command, and was to have been the Executive Officer of "R.38" on her flight to America. Born at Westboro', Mass., in 1888, he entered the Naval Air Service in 1918, and was promoted to Lieut.-Comdr. in 1919. He was commanding officer of the U.S. Navy non-rigid "C.5" on her flight from Rockaway, N.Y., to St. John's, Newfoundland. He was the possessor of the Nicaraguan Campaign Medal, the Mexican Service Medal and the Victory Medal.

Lieut.-Comdr. Valentine N. Bieg, U.S.N., who was to have been Engineer Officer of "R.38," was born in 1889 at Alexandria, Virginia. He entered the Naval Aviation Service in 1918 as Lieutenant, and was promoted to Lieutenant-Commander in March 1920. He served with distinction during the War, and possessed the Victory Medal with Star.

"R.38"

Considerable surprise has been expressed that so few of the crew escaped by parachute, and the question has been raised whether they were wearing their harnesses. It should be remembered, however, that when the ship broke the two portions may have taken up such an angle that it was impossible for the majority of the crew to reach their parachute stations.

As the airship fell into the water it sent out a flame of blazing petrol, which spread over a considerable stretch of water and formed what might almost be described as a barrage of fire, greatly interfering with any attempts at rescue of the unfortunate members of the crew. One extremely plucky attempt deserves to be mentioned. Charles Harrison Brown, of the U.S. Air Service, who was on holiday at Hull, put off to the wreckage in a tug. He jumped into the water, and, diving under the surface to avoid the flames, swam to the aft cockpit and around the fins, and found one body, which he got into a small boat.

Owing to pressure of work at the American Embassy, Lieut. C. A. Tinkler, who was to have been the fiftieth passenger, failed to catch the train on which he was to have travelled to Howden. He was to have made the journey to America on board in order to write the official log of the journey. Instead he has been kept busy writing the account of the disaster for the American authorities for issue to the American press.

Two telegraph indicators have been found in the wreckage, both with their pointers set at "stand by."

The Log of the "R.38" has been recovered. The last entry is stated to have been made at 4 p.m.



New Hanriot Coming Along

THE French Hanriot works are completing a new machine in which metal construction has been extensively used. The machine is said to be intended for colonial use, and can be used to carry six passengers. If used for military operations the machine will carry the equivalent weight in bombs. As an air ambulance the machine can be adapted to carry, in addition to the pilot, two stretcher cases and an attendant.

The Coupe Michelin.

FRENCH pilots have been working hard in connection with the Michelin Cup during the last week or so. The contest is for a circuit of France (3,000 kiloms.—1,860 miles), and was last won (in 1914) by Eugene Gilbert on a Morane-Saulnier monoplane. This year Bossoutrot competed on a Farman, Bajac on a Spad and Poiree (of Monaco fame) on a Caudron. Bossoutrot had to give up, and the race rested between Bajac and Poiree. Just as we are going to press it is learned that the competition was won by Poiree on the Caudron, whose time for the trip was 37½ hours.

Three French Firms Amalgamate

ACCORDING to reports from Paris, three of the largest French aircraft firms have joined forces, the new firm to be known as Nieuport-Astra. The three firms are Nieuport, Astra, and Compagnie Générale Transaérienne. There will be few changes in staff in the new firm. M. Delage, who has for a good many years been chief designer and engineer to the

ITEMS

The body of one of the American Chief Machinist's mates, A. L. Loftin, U.S.N., was near the telegraph indicators, still with a telephone receiver strapped to his head.

The body of Commodore Maitland when reached was entangled in wires. It was stated that he was found with his hand on a control cord, and, in the words of an American officer, "had died like a hero." His body was carried ashore by two American officers. The body of Mr. C. I. R. Campbell, the designer of "R.38," has also been recovered.

Memorial Service at Westminster Abbey

On August 30 the Air Ministry announced:

In order to commemorate the memory of the gallant American and British officers and men who were lost in the "R.38," arrangements have been made for a Memorial Service to be held at Westminster Abbey on September 7, at 12.30 p.m. It is hoped that it will be possible to throw open a portion of the Abbey to the general public.

We understand that, as this date has only recently been decided upon, detailed arrangements are not yet complete. The service will, however, be attended by representatives of H.M. the King, Chief of the R.A.F., of the Air Council and of the British Navy, Army and Air Force and of the American Forces.

We learn that the intention of the Air Council and the American authorities is that the bodies of the American officers and men will be transported from Hull accompanied by a Royal Air Force escort, and embarked with all due honours at Plymouth on the man-of-war which has been placed at the disposal of the American Government by the Prime Minister to convey the bodies to America. In the case of the bodies of the British personnel, burial will take place in accordance with the wishes of the relatives.



Nieuport firm, will remain in this capacity as regards the aeroplane, seaplane, and boat-building departments. The airship department will be under the technical direction of M. Henry Kapferer. M. G. Gradiš is chairman of the new company, with M. Thomas as general manager and M. L. Bazaine as commercial manager. The Nieuport machines will in future be known as Nieuport-Delage, much in the same way as the Spads are known as Spad-Herbemont. In this manner there is no possibility of confusing the French Nieuports with the British and other Nieuports which have no longer any connection with the original firm.

The Too-Confident Passenger

A TALE of a too-confident passenger comes from Holland. Mr. Hinchcliffe, the chief pilot of the K.L.M., was flying a special passenger from Berlin to Amsterdam *en route* for London, on a D.H. 9, when the passenger—who had flown many times before with Mr. Hinchcliffe—asked him to do a few stunts. Mr. Hinchcliffe apparently climbed until the atmosphere gave out, and then came down to more reasonable altitudes in a succession of hair-raising stunts. The passenger had not expected anything like this, or had over-estimated his own internal "stability." At any rate, when they landed at Amsterdam, the flight to London was cancelled, and the passenger came on by boat and train. In conversation in London, later, he declared jokingly that he did not think his internal arrangements would ever settle down. He has, however, already been in the air again.



MAY, next year, is the month fixed for holding the big Bourget International Air Carnival Meeting. And it is to be a four-days' show from May 25 to 28 inclusive. To induce a big gate one of the features will be a trio of lotteries for the spectators.

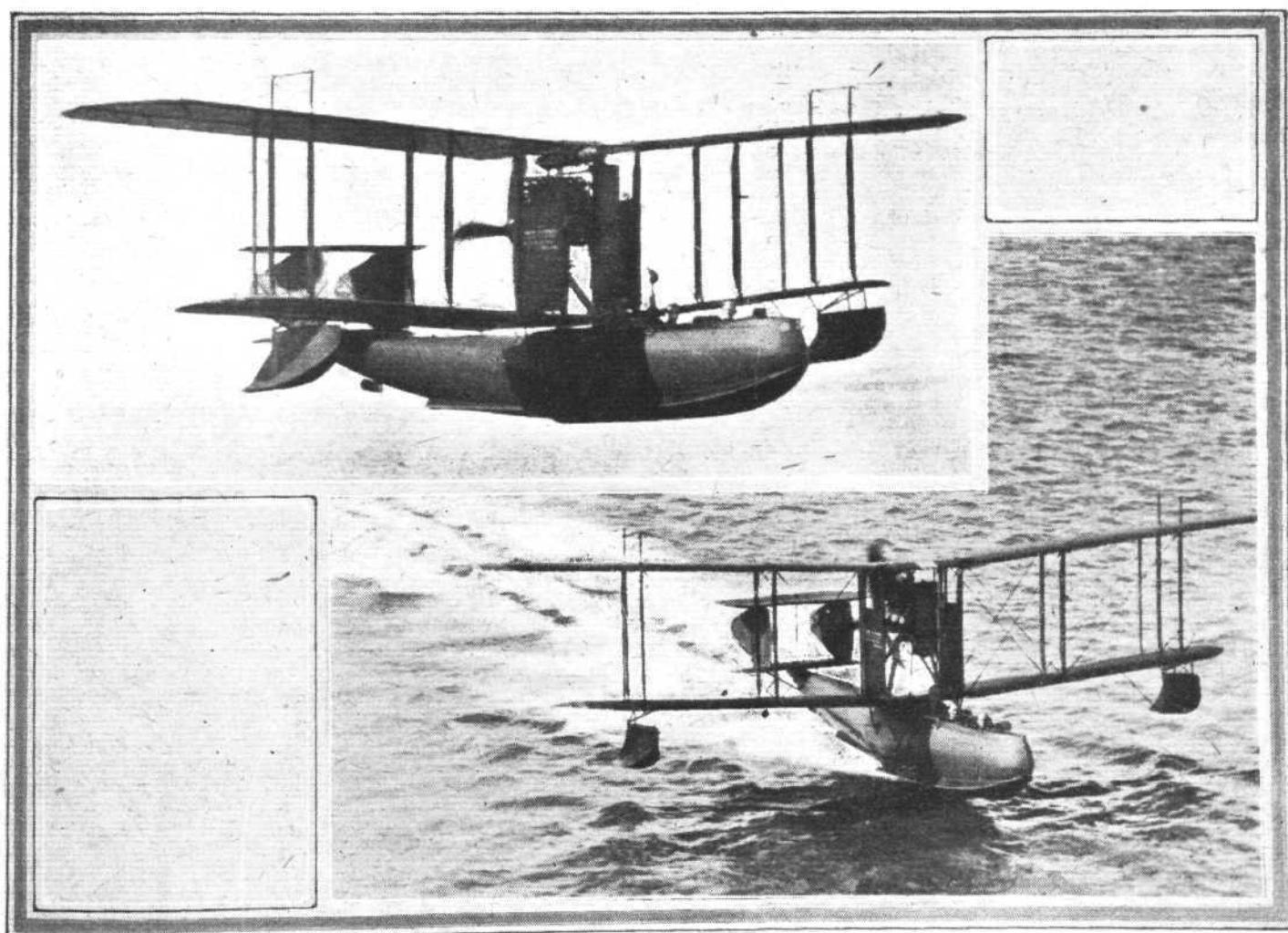
AN excellent suggestion comes from Sir Charles Bright that, to perpetuate the memory of that most lovable of men, the late Air-Commodore Maitland, the Royal Aeronautical Society should suitably establish an annual 'Maitland Lecture' on some subject concerned with airship navigation.

SWITZERLAND and France have a happy knack of marking approval, in a graceful form, of deeds of note and daring carried through within their boundaries. So it comes that Durafour, the Swiss pilot, who last month landed on Mont Blanc, has had presented to him by the Geneva State Council a silver sugar basin engraved with the arms of the canton, in commemoration of his unique air-stunt.

CLEETHORPES Town Council is credited with a quaint method of endeavouring to hurry up belated ratepayers of the district.

Last week they distributed numbered leaflets from an aeroplane flying over the town, which bore an announcement that a prize of £10 would be given to the ratepayer who paid his rates before August 31 and handed in the leaflet bearing the winning number, which number is known only to the chairman of the Council. Where the shoe pinches is with the townsfolk who paid their dues promptly before this offer was forthcoming. It may in the future have somewhat of a boomerang effect on the chance of such a sporting offer again materialising.

By reason of the very prompt reply of the Prime Minister to the De Valera epistle last week it was necessary that the text of the reply should reach the King, who for the moment holds court at Balmoral, in double-quick time. The only way was by air, and by air it went, through the very prompt co-operation of the Air Ministry, King George thus having the document at a phenomenally early time. There being no suitable landing place for 'planes at Balmoral, the arrangement was for the despatch bag to be dropped in the grounds of the Castle, where watchers were ready to "carry on."



SUPERMARINES IN FIJI: Last week we recorded the use of Supermarine flying boats in Fiji for surveying the coast line of the main island, Viti Levu. This is merely another instance of the way in which the Supermarine Works are hustling their products overseas, where they are now doing good work in many and varied portions of the globe. For their size and power these boats are extraordinarily seaworthy and airworthy, and one can see almost limitless possibilities for their use all round our scattered, sea-girt Empire. Our photographs show one of the Supermarine "Channel" type machines (160 h.p. Beardmore engines) flying and, in the lower view, taxiing on the water. Note the clean wake.

LONDON TERMINAL AERODROME

Monday Evening, August 29.

THERE is still an unaccountable falling off in the number of passengers travelling from London to Paris; but, on the other hand, there is a continuance of the influx from Paris.

The load this week has been very evenly divided between the various firms operating to Paris. The Instone Line have carried 100 passengers; Grands Express 98, and Handley Page Transport 94.

The loading of the Handley Page 0-400 has been increased to 8 passengers, in addition to goods, which accounts for the increase in the number of passengers this firm has carried. They have never any difficulty in getting all the passengers they can accommodate; in fact, their trouble is having to refuse seats to so many would-be air travellers.

The engines of the W. 8 were run yesterday, and I understand that the machine itself is to be tested at Cricklewood this afternoon. It has been rather a blow to Handley Page Transport that the Air Ministry will only license this machine to carry 12 passengers, although it is equipped with seats for 15 and has carried 27 with ease.

The same sort of thing has happened in connection with the 0-400's. They were cut down to 4 passengers by Air Ministry officials, then raised to 6 and now to 8—but in the meantime the amount of money lost owing to the enforced reduction of the passenger accommodation has been very large. It is of course agreed that the safety of passengers must be the first consideration; but it certainly appears that caution has been overdone in this case. In other words, "someone has blundered."

"Air Taxi" Tour of Europe

Mr. Cobham started his aerial tour of Europe during the week. On Tuesday he arrived from Stag Lane in a D.H. 9 loaded with "spares," and carrying as passenger Mr. Fox, of "Air Express," Paris. The radiator of the 9 was, however, leaking rather badly, and Mr. Cobham returned to Stag Lane. On the same day another of the De Havilland "air-taxi's" flew over to Ostend, with a propeller for one of their machines which was stranded there.

Mr. Cobham's passenger on this European tour is a Parisian business man who is using the aeroplane to make a lightning round of the capitals and large towns of central and western Europe. The route to be followed—as arranged at present—is Paris, Brussels, Amsterdam, Hamburg, Copenhagen, Stockholm; then back via Copenhagen, Berlin, Prague, Vienna, Warsaw, Munich, Rome, Lyons, and so to Paris.

An interesting feature of the tour is the "dumping" of spare parts at Amsterdam. This is the idea of Mr. Fox, who maintains that Amsterdam is the best air junction; and that from there the spares could be sent to any part of central and western Europe, where they may be needed, by one of the regular air-lines which have connections to Amsterdam. Mr. Fox is accompanying the machine as interpreter.

Fog on the "Airways"

Tuesday found the "airways" shrouded in fog, and only three machines managed to complete their trips.

A D.H. 18, piloted by Mr. Robins, effected the journey from London to Paris, but had to land at Lympne on the return trip. A Handley Page got through to Paris, and a Grands Express "Goliath" arrived from Paris; but, generally speaking, the whole of the "airways" were disorganized.

The Instone Air Line have now got back the Vickers-Vimy "City of London" from Brooklands, and will be able to cope with more passengers than during the past two weeks.

Mr. Holmes renewed his acquaintance with the D.H. 18 during the week, and has already made several double trips.

An old lady of 83 made the double trip to Paris and back on Friday, and described it as "no more fatiguing than an omnibus ride."

The Accident to the Brussels Machine

On Friday one of the S.N.E.T.A. Farman "Goliaths" was lost in the Channel, and the pilot, M. Delzenne, and his mechanic are still missing. There is no authentic information as to the cause of the accident. The daily press placards and headlines conveyed the information that the machine had "exploded"—but this was merely the after-effects on the journalistic mind of the "R.38" tragedy. Mr. Boudier, who certainly should speak with authority on anything connected with "Goliaths," maintains that the machine—which was in flight from London to Brussels—forced-landed in the water through engine-trouble; but he is unable to explain the absence of the pilot and mechanic.

It appears probable that, from some cause or other, the machine fell to pieces in the air. A propeller may have broken and carried away the centre section, or the collapse may have been due to faulty rigging. It was extremely fortunate that

no passengers were on board. Had there been the publicity given to the accident would, of course, have been far greater. Only the day previous the same machine had flown from Brussels with 12 passengers.

It is only fair to Grands Express, who also run "Goliaths," to say that during this summer they have been carrying between 100 and 150 passengers a week on their daily service between London and Paris, and have had no mishap greater than a forced-landing.

Another Bristol "Tourer" for Madrid

Mr. Larry Carter, who is taking a Bristol tourer out to Madrid for the Bristol Aeroplane Company, left Croydon on Saturday for Paris, and was due to leave Paris for Bordeaux on Sunday. I understand that there is a "joy-ride" and "air-taxi" concern in Madrid which is using Bristol machines and British pilots.

Mr. Carter was accompanied by his father on his 1,000 miles journey, and it is rumoured that Mr. Carter, senior, intends to offer his services to the Spanish cavalry operating against the Moors.

Grands Express have dropped slightly below the 100 passenger mark this week, owing to the falling-off in travelling to Paris. It was, of course, expected that there would be some reduction in the number of passengers as the summer drew to a close, but it was not anticipated that this would happen as early as August. If my memory is correct, August and September last year were two of the best passenger months.

There appear to be plenty of "Goliaths" in commission now, and it is the rule rather than the exception for two of these machines to be housed at Croydon. They take up a tremendous amount of room in the hangars, and crowd some of the smaller fry into the bessoneaux.

"Missing" Machine Easily Accounted For

In the newspaper accounts of the S.N.E.T.A. mishap it was stated that there was another machine, privately-owned, missing. This was a D.H. 4, which was being delivered to Brussels by the Aircraft Disposal Company. The pilot, Capt. Herne, had trouble with the engine soon after leaving Croydon, and returned to the aerodrome, "taxying" straight up to the Aircraft Disposal Company's sheds, with the intention of having the trouble remedied and leaving again. This, however, proved a longer job than he had anticipated, and he did not get away until the following morning. In the meantime the duty office, having no news of him, reported the machine missing.

The new 10-seater Napier Bristol is still at Martlesham, but is expected back at Bristol daily. This machine would be a great boon to the Handley Page Company at the present moment, and the Bristol people themselves will no doubt be glad to see it in regular use on the "airway," as it is only in this way that the real value of the machine can be proved and improvements indicated.

Capt. Baker is back on the aerodrome from the Air Ministry, where he has been acting for Col. Shelmadine—who has been on holiday. One of the minor tragedies of life occurred when he returned. A few weeks before leaving for the Air Ministry he had acquired a Sealyham pup, and this he had left in charge of Capt. Glasson while he was away at the Air Ministry. Now the pup does not know him, and only condescends to give him an occasional sniff at intervals whilst ambling along behind Capt. Glasson.

The Amsterdam Route

THE K.L.M. carried 21 passengers during the week, and this morning had a surplus of would-be air travellers. Capt. Leverton had booked four passengers, which, with the regular newspaper traffic, is his load. Then, however, the Grand Hotel, Manchester, sent a lady who was in a great hurry to get to Amsterdam to her husband, who was ill. Unfortunately it was impossible to carry her; and, as no "special" was available, she was obliged to go by boat and train.

Capt. Muir has purchased one of the Aircraft Transport and Travel "joy-ride" Avros, and this week flew it to a gala in Leominster, where he took up 100 passengers in the course of one afternoon. At Croydon, however, over the week-end, the "joy-ride" business was very poor, especially on Sunday, when, despite the fine weather, the number of passengers fell below the winter level.

The cricket team are beginning to tackle big propositions. On Sunday they entertained the Surrey Club and Ground for a two-innings match. The aerodrome were put in first and were all out for 35. Surrey then went in and 115 for one wicket before they declared. In the second innings, the aerodrome team had evidently lost their fear of their opponents, and put up a respectable score of 105, and then proceeded to take seven Surrey wickets for 50 runs.

**Deaths**

GEOFFREY HAMILTON NORMAN, Squadron Leader, R.A.F., died on August 18, after a short illness, at Cambridge Military Hospital, Aldershot.

ERIC RAVEN, Pilot Officer, R.A.F., was killed in an aeroplane accident near Thetford on August 19, aged 23. He was the only son of Mr. and Mrs. E. M. LUSH, 3, Holly Mansions, West Hampstead, N.W.

Flight-Lieut. FRANK SHINGLETON, R.A.F., was killed on August 21, in an aeroplane accident at Montevideo. He was aged thirty-three.

Capt. OLIVER MANNERS SUTTON, M.C., R.A.F., aged 25, son of A. C. Sutton, Woodcroft, Sandhurst Road, Tunbridge Wells, was killed in an aeroplane accident at Martlesham on August 16. He was buried with military honours at Withyham on August 20.

Married

Capt. JAMES LLOYD FINDLAY, M.C., R.A.F., second son of the Hon. Sir John Findlay, K.C., K.C.M.G., and Lady Findlay, of Wellington, New Zealand, was married on August 17, at St. Andrew's, Ashley Place, S.W., to RUBY VIOLET, youngest daughter of the late THOMAS ALEXANDER FINCH and of Mrs. FINCH, of Dublin.

To be Married

The marriage between Mr. H. J. LOUGHIN, A.M.I.E.E., late R.E. and R.A.F., son of Thomas Loughlin, of Hove, and ELLALINE FENTON, daughter of Mr. and Mrs. James Fenton, of Oldfield, Wimbledon, Surrey, will take place at the Church of the Sacred Heart, Wimbledon, on Monday, August 22.

A marriage has been arranged, and will take place in



THE LATE SQUADRON-LEADER GEOFFREY NORMAN

THE progress of experimental aeronautics has suffered a serious loss by the death of Sqdn.-Leader G. H. Norman, B.Sc., A.M.I.C.E., A.R.S.M., the head of the Engine Research Department of the Royal Aircraft Establishment. He died on August 18 last at the Cambridge Hospital, Aldershot, after a very short illness.

Sqdn.-Leader Norman, though educated for the Royal Navy, eventually altered his plans and studied at the London School of Mines. Before taking up aeronautics he had a varied career in general engineering; his experience included electrical constructional work in New Zealand, work in the Department of Mines in Egypt, experimental work on internal combustion engines, and some private experimental work on the springing of motor-cars.

In the early days of the War Sqdn.-Leader Norman served in the Artillery, but was transferred to the R.F.C., where he soon qualified as a pilot, and spent 13 months on the Western Front as Flying Officer and Flight Commander in squadrons equipped with F.E. 2 B. aeroplanes. It was whilst fighting in these that he conceived what became the standard aerial gun sight, which bears his name, of both the British and the American Air Forces.

It was through the trials of this sight in England that Sqdn.-Leader Norman, after being wounded in action in 1915, formed his connection with the experimental branch of the R.F.C. His constructive ability and extraordinary enthusiasm for all types of experimental work so impressed the late Major Hopkinson, who was in charge of this work at the time, that he sent him to the Armament Experimental Station at Orfordness, and put him in charge of the whole of the experimental flying. From that time to the day of his last illness his vigorous prosecution of every kind of experimental work



Montreal to New York in 3½ Hours

A MESSAGE from New York states that five Canadian members of the R.F.C., commanded by Lieut. Field, flew on August 24 from Montreal to New York (about 250 miles) in 3 hrs. 15 mins.



Bombay late in September, between Flight-Lieut. DAVID S. DON, R.A.F., late R.N., only child of Mrs. SARGANT, 40, Park Lane, and MARY MONICA, elder daughter of Mrs. MACDERMOTT, 59, Redcliffe Gardens, S.W. 10.

A marriage has been arranged between the Rev. SHIRLEY MINIFIE-HAWKINS (late Oxfordshire L.I., and R.A.F.), Assistant-Chaplain, Missions to Seamen, Rotterdam, and FRANCES MARY, youngest daughter of the late WILLIAM PRATT, of Bloxwich.

The marriage arranged between Squadron-Leader P. C. MALTBY, D.S.O., A.F.C., Quetta, Baluchistan, and Miss PATERSON, of 6, Moray Place, Edinburgh, will take place in October in India.

The engagement is announced of Lieut. BARON GUSTAVE DE MÉVIUS, Belgian Military Air Force, Belgian and French Croix de Guerre, elder son of Baron de Mévius, Senateur, and ISABELLE, only daughter of the late COUNT DE LALAING, G.C.V.O., formerly Envoy-Extraordinary and Minister Plenipotentiary of Belgium at the Court of St. James's. The marriage will take place in Brussels on August 30.

The marriage arranged between Flying Officer W. G. NICHOLL, R.A.F., and Miss SYDNEY GEDGE will take place in India in October.

The engagement is announced between Capt. H. H. SQUARE, late R.A.F., and FRANCES, eldest daughter of Mr. and Mrs. H. G. MEADE, of Quinta Piquio, Santander, Spain.

Item

The will of Major FREDERICK CHARLES HORACE SINCLAIR, late R.A.F., of Brompton Square, South Kensington, has been proved at £21,301.



was unceasing, and the influence of his clear thinking and great designing ability was of considerable help throughout the station.

In 1918, when Major Hopkinson took over the Royal Aircraft Establishment, he placed Sqdn.-Leader Norman in control of the engine research carried out there, where he did much important experimental work on air-cooled engines, in which he was a great believer. But his interests were not confined entirely to engines; he will probably be best remembered by his efforts to reduce the risk of fire in the air and on crashing, and by his development of devices to dispense with the dangerous operation of swinging a propeller by hand to start the engine.

It is impossible to close a description of this nature without some reference to what was Sqdn.-Leader Norman's most striking characteristic, which effectively endeared him to all who worked with him and under him. This characteristic was his disregard of personal danger when work was to be done, coupled with extreme care for the safety of all who were under his command or in any way connected with his experiments.

He left behind him a supreme example of this in a flying experiment that he made a few weeks before his death. An aeroplane had been fitted up with an arrangement for spraying fire extinguishing liquid into the engine, to extinguish fire in the air. So strongly did he feel the need of personal demonstration, that he twice produced a fire artificially around his engine in full flight, and twice extinguished it. Perhaps it is to those who fly that an act such as this will make the most intense appeal, but its significance will not end there; it will be remembered as long as the awful possibility of fire in the air remains.



Munich preparing for Air Traffic

THE Bavarian authorities are making arrangements to establish a first-class air station at Munich. Discussions between the Federal States have taken place on Munich's favourable situation in relation to the Continental airways.

'Plane Wrecked on a Sandbank

In reference to the exciting adventure of an aeroplane pilot and his two passengers off Blackpool on Wednesday, August 17 last—which was “dealt with” in *Grand Guignol* style by a section of the Press—a true account of the incident appeared in the *Blackpool Gazette and Herald* for August 20, from which we give a brief résumé of this somewhat unusual aeroplane “accident.”

On the Wednesday evening in question, Capt. S. N. Giroux (late R.A.F.), Managing Director of the Giro Aviation Co., of Southport, left the Hesketh Park Aerodrome at 8 p.m. for Blackpool, on a “D.H.6,” accompanied by two passengers, Capt. W. P. Gibbons and Mr. T. J. Davies. They reached Blackpool in about seven minutes, and after a stay of about half-an-hour started on their return trip to Southport. A short distance out engine trouble developed, so Lieut. Giroux turned inshore again, and decided to alight on a large sandbank two miles from the shore, with the intention of landing one of his passengers and proceeding to Southport with the other, returning again after for the first. Owing to the extreme softness of the sand, however, the machine was damaged on landing to such an extent that further flight was impossible. As the tide was flowing in, and slowly but surely covering the sandbank, prompt action was necessary to attract attention ashore, and sundry articles of clothing, soaked in petrol, were utilised as flares until all their matches gave out—but without the desired result. The “island” meanwhile having become *non est*, Lieut. Giroux, pluckily, decided to swim ashore to obtain help, but after swimming for about three-quarters of an hour he was carried far out of his course by the currents, and only just managed to reach a hopper anchored in the mouth of the Ribble and climb on board. Accompanied by members of the hopper’s crew, he at once set out in a dinghy for the sandbank, which was reached just in time to rescue the marooned passengers. They returned to the hopper, where they spent the night, and the next day the aeroplane was salved, more or less damaged by its all-night immersion in the sea.

A Zepp. Hangar for Denmark

THE ENTENTE has, writes the *Morning Post* Copenhagen correspondent, offered to sell to Denmark the great Zeppelin shed at Tonder, and probably Denmark will accept the offer. As the removal of the shed is at present too expensive an undertaking for the Government, it intends to leave the structure where it is at present, removing the smaller aeroplane hangar to Copenhagen.

Prague's Second International Aero Exhibition

PARTICULARS of this Exhibition to be held from October 22 to 30 next at Prague—originally it was to take place the latter part of September—have now been issued. It is under the patronage of the Czechoslovakia President, T. G. Masaryk, and is to be held at the Palace of Industry, Prague, organised by the Ceskoslovensky Aviatický Club, Praha I. Obecni dum. This second exhibition is a result of the very successful show held in 1920, and it is anticipated that the October exhibition will far surpass last year, and justify the claim of the organising Club that “Prague is geographically the chief point in Central Europe as well as the centre of all Slav commerce, and therefore will certainly hold the leading position in aeronautics.” Following the close of the Exhibition, firms will, on November 6, have an opportunity of giving practical proof of the flying powers of their exhibited machines, if they so desire, at the Kbely Aerodrome. Anyone interested in the exhibiting side of this fixture should write for full particulars to the General Secretary, Charles Hypsa at the Club, as above.

A Question of Compasses

RECENTLY there was trouble with the compass on the Fokker machines owing to the steel construction of most of the framework of the fuselage and owing also to the position of the compass near the engine.

Some peculiar magnetic effects have been observed, we understand; for example, that a small movement of the joystick, which is metal, swings the compass several degrees.

Some of the compasses fitted to the machines have no arrangements for correction, and cannot be swung, there being no magnet chamber.

During the long spell of fine weather there has, of course, been no need to trouble about compasses; but Captain Leverton, who is looking ahead, has now been going into this matter, and finds that there is no compass base at Schiphol, and no facilities for swinging compasses. He has, therefore, arranged to have the compasses of all the K.L.M. machines swung at Croydon, and also to replace useless types.

Pilots in Holland, military and civil, do not apparently use compasses, and are therefore oblivious to their defects.

SIDE-WIND

MESSRS. S. SMITH AND SONS (M.A.), Ltd., have now changed their Glasgow address from 141, Bath Street, to 23-25, Renfrew Street, Glasgow.



PUBLICATIONS RECEIVED

Aeronautical Research Committee, Report No. 729 (M. 3). Note on the Comparison of Metals as Aeroplane Structural Materials. By A. J. Sutton Pippard, M.B.E. London: H.M. Stationery Office. Price 2d. net.

Meteorological Office. Professional Notes. No. 24. The Variation of Wind. By Capt. J. Durward, M.A. London: H.M. Stationery Office. Price 6d. net.

Income Tax and Super-Tax 1842-1922, Tabular View. London: Oliver and Boyd, 33, Paternoster Row, E.C. Price 1s. net. (by post 1s. 2d.)

Textbook of Aerial Laws. By Henry Woodhouse. New York: Frederick A. Stokes Co. London: T. Werner Laurie, Ltd. Price 42s. net.

“Wolseley” Gauges, Taps and Dies. Wolseley Motors, Ltd., Adderley Park, Birmingham.

Radiator and Lamp Repairs. Barimar, Ltd., 10, Poland Street, London, W.1.



AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motors
The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

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